



Quick Start Guide

Fiber Optic Bridge Keyword System

DG-FO-BRIDGE-K System (Keyword)

Please read all instructions *BEFORE applying power!*



Dearborn Group Technology is Vehicle Networks!



- 20+ Years in of expertise in Vehicle Networks
- Automotive, Truck & Bus/Heavy Duty Vehicle Networks
- Global Footprint & Partners
- Vehicle Network:
 - Products
 - Custom Products & Solutions
 - Consulting
 - Education & Training
 - Conformance Testing



Our Vehicle Network Products



Dearborn Protocol Adapter (DPA) Series



Data Link Monitor

Dearborn Protocol Adapter

- ◆ Truck & Bus/HD Vehicles
- ◆ 6+ Models, DLM or OEM SW



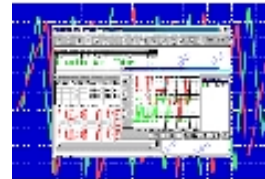
Gryphon 2



Gryphon S3



Gryphon Fiber Optic



Hercules

Gryphon Series

- ◆ Automotive, Truck & Bus/HD
- ◆ 3 Models, Hercules SW
- ◆ Personality Cards
 - LIN, Dual-LIN, CAN, Quad-CAN



Px2



VSI-2534



VSI/VLT

Px2, VSI-2534, VSI/VLT

- ◆ Support Automotive Vehicle Network Standards



FlexRay



Protocol Mini-Module



AutoPak



DPA-on-a-Chip

FlexRay

- ◆ Emerging Vehicle Network Standard, 20+ Products

Protocol Mini-Module, AutoPak, DPA-on-a-Chip

- ◆ Customized Product Solutions

DG Shipping Package Contents

- The Fiber-Optic Satellite K Module package includes the following items:
 - ◆ KWP Fiber-Optic Bridge (Black box), including a 12 VDC Universal A/C power adapter KWP Fiber-Optic Satellite Module (nine-volt batteries not included)
 - ◆ Two fiber-optic cables with SMA connectors (10 meters in length)
 - ◆ CD with the user Manual for the Fiber-Optic Bridge
- If you discover that you are missing any part of this package, please contact your Dearborn Group sales representative or the technical support hotline at once.

http://www.dgtech.com/support/support_guide.html

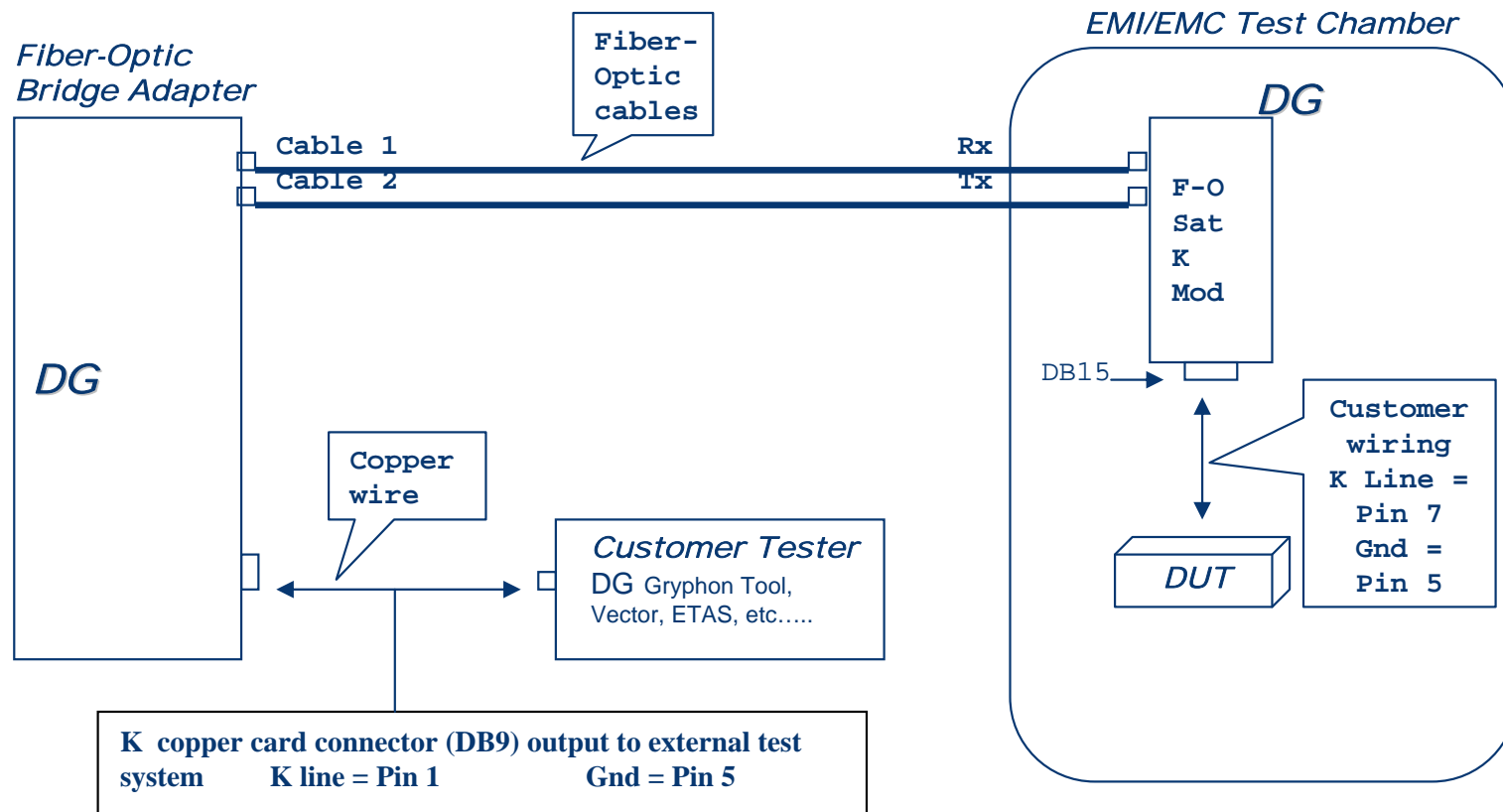
Fiber-Optic Bridge Functions

- The Fiber-Optic Bridge consists of two major components:
 1. The Fiber-Optic Bridge Adapter
 2. The Fiber-Optic Satellite Module.
- The Bridge Adapter works as a pass-through hardware device. It translates the vehicle network electrical signals from the GRYPHON® tool (or a user's host test device) into fiber-optic signals.
- These fiber-optic signals are used to interface with the Satellite Module placed in the EMC Test Chamber. The fiber-optic signals are then translated back into vehicle network electrical signals by the Satellite Module and used to communicate with the DUT.

Fiber-Optic K Bridge Example

Bridge Adapter/Gateway connection example using:

- Bridge Adapter (Black Box)
- Fiber Optic Satellite "K" module



K Fiber Optic Bridge



Pin Assignment Warning

CAUTION

- Make only the connections to the DB 15 and DB 9 connectors as indicated in the instructions. Other pins contain signals and voltages and any connection made to them could cause damage to the hardware voiding the warranty.

<u>Fiber-Optic Cables/Wiring Pin Assignments</u>		
Gryph Copper Card To Customer Tester	FO cables from the Bridge to the Satellite	Satellite Connector (DB 15) to the DUT (wired)
Pin 1 to K Line Pin 5 to GND	Cable 1 to kRx (Cable 1) Cable 2 to kTx (Cable 2)	Pin 7 to K Line Pin 5 to Ground

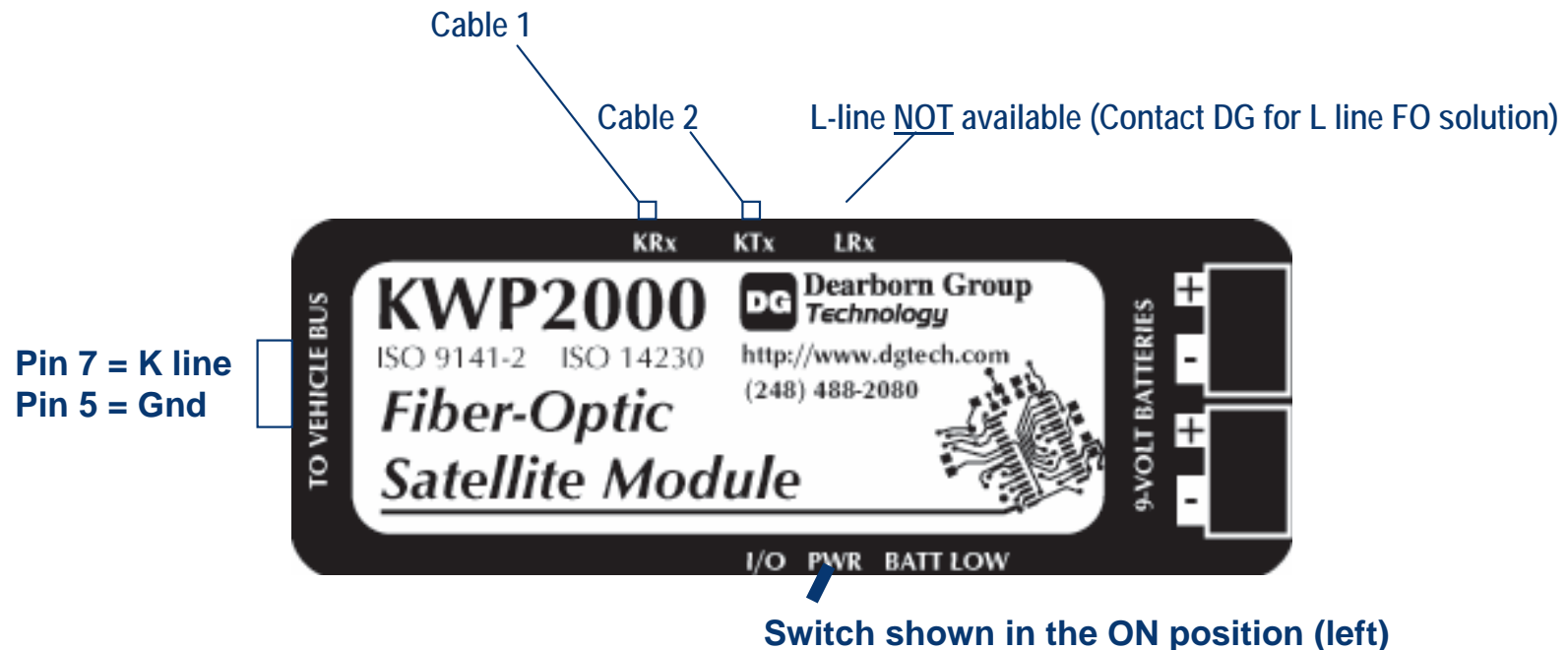
- Note: When connecting the fiber-optic cables, always connect Cable 1 from the Bridge to kRx (Cable 1) on the Satellite, and Cable 2 from the Bridge to kTx (Cable 2) on the Satellite.
- *Caution: Making a connection to any of the other pins of the DB9 or DB 15 connector could result in damage to the equipment.*

K System Bridge Module

- **IMPORTANT NOTE:** When connecting the fiber-optic cables, always connect Cable 1 from the Bridge to KRx (Cable 1) on the Satellite, and Cable 2 from the Bridge to KTx (Cable 2) on the Satellite Module.
- Power switch for the bridge
 - ◆ This switch is used to apply/disconnect power to the KWP Fiber-Optic Bridge. Power to the unit is applied when the switch is placed in the “up” position.
- Power jack
 - ◆ This standard 2.5 mm x 5.5 mm connector (with positive center pin) is used to provide power to the KWP Fiber-Optic Bridge.
 - ◆ This power jack is designed to accept an input range between 8 to 18 VDC. The typical operating voltage supplied by the included Universal Power Adapter is approximately 12 VDC.

Fiber-Optic Satellite K Module

- The KWP Fiber-Optic Satellite Module is normally placed inside of the test chamber, although it is often used for tests performed outside the chamber as well.
- Figure below shows the KWP Fiber-Optic Satellite K Module.



K System Satellite Module

- Pin assignments: The DUT (Device Under Test) is connected to the Satellite module, using pin 7 for K line signal, pin 5 for Gnd.
DO NOT CONNECT ANY OTHER PINS!
- Power Switch
 - ◆ This switch (marked I/O PWR on the unit) is used to turn power on or off to the KWP Satellite Module. Power is applied to the unit when the switch is moved to the left (I).
- Power to Satellite Module
 - ◆ Power is supplied to the Fiber-Optic Satellite Module via two internal nine-volt batteries and may be turned on or off via the toggle switch.
- Battery compartment
 - ◆ The Fiber-Optic Satellite Module is powered by two nine-volt batteries inserted into the battery compartment and connected as indicated on the label of the module. The cover lid over the batteries is designed to fit tightly and hold them in place.

Power On and Battery Low indicators for Satellite Module

- Power On status LED
 - ◆ This red status LED (closest to the power switch) will be turned on when battery power is switched on. It remains on momentarily and then turns off to conserve battery power.
- Battery Low status LED
 - ◆ This status LED (farthest from the power switch) will NOT be illuminated during operation unless there is a low battery condition, in which case the red LED will be turned on.
 - ◆ When this LED is illuminated, it indicates that the enclosed batteries are not providing sufficient power for the proper operation of the module and the batteries should be replaced.
 - ◆ Note: Do not attempt to run further tests until the batteries have been replaced.



Fiber Optic Cables

- Fiber Optic Cable Specs
 - ◆ 100/140 Micro multimode fiber optic cable with SMA905 connectors
- The fiber optic cables contain glass tubes for signal transmission. They are easy to break if bent too far.
DO NOT exceed 25mm bend radius
- A quick and easy test of the cable is to shine a light down one end of the cable. If the slightly bent cable transmits that light out the other end, it is not damaged.

Fiber Optic Satellite Module Isolation

- The FO SAT Modules need to be isolated by 50mm. This applies to all satellite modules and is not specific to DG's.
- The reason is the bypass caps typically are placed inside the fiber optic satellite modules from inputs to the Printed Circuit Board/Chassis.
- If the case of the fiber optic module:
 - ◆ IS placed directly on the ground plane
 - ◆ AND there are bypass caps inside the satellite module from input to chassis
 - ◆ Then there is an additional RF path provided to travel.
- This can cause different behavior and this is what is being avoided by isolating the fiber optic module by 50mm insulation above the ground plane.



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